(19) World Intellectual Property Organization International Bureau



(43) International Publication Date 10 March 2005 (10.03.2005)

PCT

(10) International Publication Number WO 2005/022078 A1

(51) International Patent Classification?:

G01B 9/02

(21) International Application Number:

PCT/AU2004/001160

(22) International Filing Date: 27 August 2004 (27.08.2004)

(25) Filing Language:

English

(26) Publication Language:

English

(30) Priority Data: 2003904613

27 August 2003 (27.08.2003) AU

(71) Applicant (for all designated States except US): THE UNIVERSITY OF QUEENSLAND [AU/AU]; St Lucia, QLD 4069 (AU).

(72) Inventors; and

(75) Inventors/Applicants (for 1/5 only): WHITE, Andrew, Gerard [AU/AU]; 43 Adsett Street, Taringa, QLD 4068 (AU). HARVEY, Michael, David [AU/AU]; 4/11 Geenlaw Street, Indooroopilly, QLD 4068 (AU).

(74) Agent: EAGAR & BUCK PATENT AND TRADE MARK ATTORNEYS; PO Box 509, Spring Hill, QLD 4004 (AU). (81) Designated States (unless otherwise indicated, for every kind of national protection available): AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GII, GM, IIR, IIU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MZ, NA, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW.

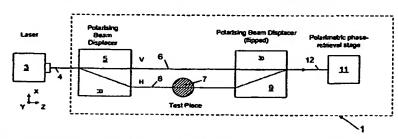
(84) Designated States (unless otherwise indicated, for every kind of regional protection available): ARIPO (BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PL, PT, RO, SE, SI, SK, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

Published:

with international search report

For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing as the beginning of each regular issue of the PCT Gazette.

(54) Title: METHOD AND APPARATUS FOR PRECISION MEASUREMENT OF PHASE SHIFTS



(57) Abstract: An interferometer (1) includes a beam displacing assembly (5, 9). The beam displacing assembly is arranged to split an input beam (4) into first and second basis beams (6, 8), that have orthogonal polarisations being respective horizontal and vertical polarizations, and to combine said basis beams to produce an output beam (12). A polarimetric phase retrieval assembly (11) is responsive to the output beam and is arranged to determine a difference in phase shift imparted to one of the basis beams (6, 7) relative to the other by a test piece (7). Other embodiments of the invention are arranged to produce basis beams that have respectively orthogonal spatial modes.

BEST AVAILABLE COPY